DRAFT FINAL AREA III REMEDIAL INVESTIGATION

VOLUME II OF II APPENDICES

RAYMARK-FERRY CREEK-OPERABLE UNIT 3 STRATFORD, CONNECTICUT

RESPONSE ACTION CONTRACT (RAC), REGION I

For U.S. Environmental Protection Agency

By Tetra Tech NUS, Inc.

EPA Contract No. 68-W6-0045 EPA Work Assignment No. 002-RICO-01H3 TtNUS Project No. N7491

November 2000



TETRA TECH NUS, INC.

DRAFT FINAL _AREA III **REMEDIAL INVESTIGATION**

VOLUME II OF II APPENDICES

RAYMARK-FERRY CREEK-OPERABLE UNIT 3 STRATFORD, CONNECTICUT

RESPONSE ACTION CONTRACT (RAC), REGION I

For U.S. Environmental Protection Agency

> Ву Tetra Tech NUS, Inc.

EPA Contract No. 68-W6-0045 EPA Work Assignment No. 002-RICO-01H3 TtNUS Project No. N7491

November 2000

Project Manager

Program Manager

<u>SECTION</u>			PAGE
1.0	INITO	RODUCTION	4.4
1.0	1.1	Purpose of Report	
	1.1	Report Organization	
	1.3	Study Area Background	
	1.5	1.3.1 History of the Raymark Facility	
		1.3.2 Study Area Description and Setting	
		1.3.3 Other On-Going Activities.	
		1.3.4 Previous Investigations	
		1.0.4 Trevious investigations	1711
2.0	STU	DY AREA INVESTIGATIONS	2-1
	2.1	Surface Water and Sediment Investigations (1992-1994)	
		2.1.1 Sediment at Raymark Facility and along	
		Ferry Creek Housatonic River (1992 - 1995)	2-2
		2.1.2 Surface Water at Raymark Facility (1993)	
	2.2	Soil Sampling (1993)	
	2.3	Phase I Remedial Investigation (1993 - 1995)	
		2.3.1 Surface Water and Sediment Sampling (1994-1995).	
	2.4	Comprehensive Site Investigation Sampling Program (1994-19	
	2.5	Removal Actions Post-Excavation Program (1994 - 1996)	
	2.6	Ecological Risk Assessment (1996-1999)	
	2.7	Phase II Site Investigation (1997)	
		2.7.1 Soil Borings and Soil Sampling	
		2.7.2 Sediment Sampling	
3.0	PHYS	SICAL CHARACTERISTICS OF THE STUDY AREA	3-1
	3.1	Surface Features and Land Use	3-1
	3.2	Geology	
		3.2.1 Regional Geology	3-3
		3.2.2 Site Geology	3-4
	3.3	Hydrogeology	
	3.4	Surface Water Hydrology	
	3.5	Climate and Meteorology	3-8

SECTION				<u>PAGE</u>
4.0	NATU	JRE AND	EXTENT OF CONTAMINATION	4-1
	4.1	Potentia	Il Sources of Contamination	4-1
		4.1.1	Raymark Soil-Waste/Fill Materials Disposal	4-3
		4.1.2	Raymark Wastewater Discharge	4-3
	4.2	Overviev	w of Chemicals Detected	4-3
		4.2.1	Volatile Organic Compounds (VOCs)	4-3
		4.2.2	Semivolatile Organic Compounds (SVOCs)	4-4
		4.2.3	Pesticides	
		4.2.4	Polychlorinated Biphenyls (PCBs)	4-4
		4.2.5	Dioxins and Furans	4-5
		4.2.6	Metals	4-6
		4.2.7	Asbestos	4-6
		4.2.8	Chemical Compounds Used or Handled at the	
			Raymark Facility	4-6
		4.2.9	Terminology for Evaluating Analytical Data	
		4.2.10	Evaluation of Usability of Field Screening Data	4-8
	4.3	Backgro	und Concentrations	4-8
		4.3.1	Sediment	4-10
		4.3.2	Surface Water	4-10
		4.3.3	Soil	4-10
	4.4	Area D:	Beacon Point Area - Summary of Contamination	4-11
		4.4.1	Sediment	4-11
		4.4.2	Surface Water	4-14
		4.4.3	Soil	4-15
		4.4.4	Biota	4-17
	4.5	Area E:	Elm Street Wetlands – Summary of Contamination	4-17
		4.5.1	Sediment	
		4.5.2	Surface Water	4-19
		4.5.3	Soil	4-20
	4.6	Correlati	ions Among Contaminants of Concern (COCs) in Sediment	4-20
		4.6.1	COCs in Sediment	
		4.6.2	COCs in Soil	4-22
5.0	CONT	TAMINAN'	T FATE AND TRANSPORT	5-1
	5.1	Contami	nant Sources and Releases	5-1
	5.2		nant Fate and Transport in the Area III Study Area	
		5.2.1	Soil	
		5.2.2	Sediment and Surface Water	
	5.3	Summar	у	

SECTION				<u>PAGE</u>
6.0	BASE	ELINE HU	MAN HEALTH RISK EVALUATION	6-1
	6.1		tion - Overview of Risk Assessment Process	
	6.2		aluation Methodology	
		6.2.1	Selection of Chemicals of Potential Concern	
	6.3	Toxicity	Assessment	
		6.3.1	Carcinogenic Effects	
		6.3.2	Non-carcinogenic Effects	
		6.3.3	Toxicity Summaries for Major Chemicals of Concern	
	6.4	Exposur	e Assessment	
		6.4.1	Exposure Setting	
		6.4.2	Conceptual Site Model	
		6.4.3	Potential Routes of Exposure	
		6.4.4	Potential Receptors	
		6.4.5	Exposure Pathways	
		6.4.6	Quantification of Exposure	
		6.4.7	Exposure to Lead	
	6.5	Risk Cha	aracterization	
		6.5.1	Risk Characterization Methodology	
	6.6	Uncertai	nties Analysis	
		6.6.1	Uncertainty in Selection of Chemicals of Concern	
		6.6.2	Uncertainty in the Exposure Assessment	
		6.6.3	Uncertainty in the Toxicological Evaluation	
	6.7	Baseline	Human Health Risk Assessment - Area D,	
		Beacon	Point Area	6-49
		6.7.1	Overview of Area D, Beacon Point Area	6-49
		6.7.2	Data Evaluation	
		6.7.3	Area D, Exposure Assessment	
		6.7.4	Risk Characterization	6-59
		6.7.5	Uncertainties	
		6.7.6	Summary of Human Health Risk Assessment	6-67
	6.8	Baseline	Human Health Risk Assessment - Area E, Elm Street	
		Wetlands	S	6-69
		6.8.1	Overview of Area E, Elm Street Wetlands	
		6.8.2	Data Evaluation	6-69
		6.8.3	Area E, Exposure Assessment	6-72
		6.8.4	Risk Characterization	6-76
		6.8.5	Uncertainties	
		6.8.6	Summary of Human Health Risk Assessment	

SECTION	<u>1</u>	<u>P4</u>	AGE
	6.9	Summary of Human Health Risk Assessment for Areas D and E 6.9.1 Noncarcinogenic Risks 6.9.2 Carcinogenic Risks 6.9.3 Exposure to Lead 6.9.4 Exposure to Asbestos 6.9.4	-80 -81 -81
7.0	ECO	LOGICAL EVALUATION	7 1
	7.1	Site Description and Potential Receptors	7-2 7-2
		7.1.3 Habitats and Potentially Exposed Receptor Groups	7-3 7-7
	7.2	Routes of Exposure	7_7
	7.3	Identification of Contaminants of Concern	7-8
	7.4	Selection of Ecological Endpoints	7-9
	7.5	Selection of Indicator Species7-	10
	7.6	Ecological Effects	.10
		7.6.1 Chemistry	10
			12
			13
	7.7		15
	7.8	Summary	19
	7.9	Conclusions and Recommendations7-	20 22
8.0	SLIMA	MARY AND CONCLUSIONS	
0.0	8.1	MARY AND CONCLUSIONS	}-1
	0.1	8.1.1 Nature and Extent of Contamination within Area III	3-2
		8.1.2 Volatile Organic Compounds (VOCs))-Z
		8.1.3 Semivolatile Organic Compounds (SVOCs))-J
		8.1.4 Pesticides	;-3 }_A
		8.1.5 Polychlorinated Biphenyls (PCBs)	1- 1-5
		8.1.6 Dioxins/Furans	3-5
		8.1.7 Metals	-6
		8.1.8 Asbestos	2-7
	8.2	Contaminant Fate and Transport Summary8	-7
		8.3 RISK Assessment Summary	-8
		8.3.1 Human Health Risk Assessment	-8
	0.4	8.3.2 Ecological Risk Evaluation 8-	10
	8.4	Conclusions8-	11

REFERENCES

TABLES

NUMBE	₽R
-------	----

2-1	History of Activities Associated with Raymark Facility and Environs
4-1	Chemical Compounds Used or Handled at the Raymark Facility
4-2	Summary of Background Concentrations in Sediment
4-3	Summary of Background Concentrations in Surface Water
4-4	Summary of Background Concentrations in Soil
4-5	Area D: Samples Collected and Analyses Performed
4-6	Summary Statistics and Comparison to Criteria – Area D - Sediment
4-7	Summary Statistics and Comparison to Criteria – Area D – Surface Water
4-8	Summary Statistics and Comparison to Criteria – Area D - Soil
4-9	Summary Statistics and Comparison to Criteria – Area D - Biota
4-10	Area E: Samples Collected and Analyses Performed
4-11	Summary Statistics and Comparison to Criteria – Area E - Sediment
4-12	Summary Statistics and Comparison to Criteria – Area E – Surface Water
4-13	Summary Statistics and Comparison to Criteria – Area E -Soil
4-14	Correlations Among Contaminants of Concern
4-15	Correlations Among Contaminants of Concern - Soil
6-1	Criteria Used to Evaluate Chemicals Detected in Soil/Sediment
6-2	Summary of Remedial Investigations and Recommendations
6-3	Cancer Slope Factors for Chemicals of Concern
6-4	Estimated Orders of Potential Potency for Carcinogenic PAHs ⁽¹⁾
6-5	Dioxin and Furan Toxicity Equivalent Factors ^(a)
6-6A	Slope Factors for Aroclors (1)
6-6B	Toxicity Equivalence Factors for PCB Congeners
6-7	Reference Doses and Endpoints/Target Organs for Chemicals of Concern
6-8	Summary of Potential Receptors
6-9	Summary of Exposure Routes Evaluated Quantitatively
6-10A	Summary of Exposure Input Parameters - Sediment/Soil ⁽¹⁾
6-10B	Chemical Specific Dermal Absorption Factors for Soils/Sediments
6-11	Summary of Exposure Input Parameters - Surface Water (1)(2)
6-12	Selection of Chemicals of Potential Concern, Area D, Beacon Point Area Surface
0.40	Soil/Sediment
6-13	Selection of Chemicals of Potential Concern, Area D, Beacon Point Area, All Soil/Sediment (0-15')
6-14A	Comparison of Maximum Concentration to Groundwater Protection Benchmarks,
	Area D, Beacon Point Area, Surface Soil/Sediment
6-14B	Comparison of Maximum Concentrations to Groundwater Protection Benchmarks
	Area D, Beacon Point Area, All Soil/Sediment (0-15')
6-14 C	Comparison of Leachate Concentrations to SPLP Criteria, Area D, Beacon Point Area

TABLES (Cont.)

NOMBER	
6-15	Selection of Chemicals of Potential Concern, Area D, Beacon Point Area, Surface Water
6-16	Selection of Receptors and Exposure Pathways, Area D, Beacon Point Area

6-17 Exposure Point Concentrations, Area D, Beacon Point Area

6-18A Summary of Cancer Risks and Hazard Indices, Reasonable Maximum Exposure Scenario, Area D, Beacon Point Area

6-18B Summary of Cancer Risks and Hazard Indices, Central Tendency Exposure Scenario, Area D, Beacon Point Area

6-19 Summary of Remedial Investigations and Recommendations, Area D, Beacon Point Area

6-20 Selection of Chemicals of Potential Concern, Area E, Elm Street, Surface Soil/Sediment

6-21 Selection of Chemicals of Potential Concern, Area E, Elm Street, All Soil/Sediment (0-15')

6-22A Comparison of Maximum Concentrations to Groundwater Protection Benchmarks, Area E, Elm Street, Surface Soil/Sediment

6-22B Comparison of Maximum Concentrations to Groundwater Protection Benchmarks, Area E, Elm Street, all Soil/Sediment (0-15')

Selection of Chemicals of Potential Concern, Area E, Elm Street, Surface Water
 Selection of Receptors and Exposure Pathways, Area E, Elm Street

6-25 Exposure Point Concentrations, Area E, Elm Street

6-26A Summary of Cancer Risks and Hazard Indices, Reasonable Maximum Exposure Scenario, Area E, Elm Street Wetlands

6-26B Summary of Cancer Risks and Hazard Indices, Central Tendency Exposure Scenario, Area E, Elm Street Wetlands

6-27 Summary of Remedial Investigations and Recommendations, Area E, Elm Street Wetlands

7-1 Sediment Total Organic Carbon Statistics

7-2 Sediment AVS-SEM Statistics

7-3 Contaminants of Ecological Concern⁽¹⁾

7-4 Assessment and Measurement Endpoints

7-5 Comparison of AWQC for COCs with Measured Water Concentration (UG/L) Exceeding Criteria

7-6 Concentrations of Contaminants Detected in Sediment Samples (Dry Weight Basis)

7-7 Concentrations of Metals, PCBs, DDTs, and PAHs in Invertebrate Tissues (Wet weight)

NIIMRED

TABLES (Cont.)

NUMBER	NUMI	BE	R
--------	------	----	---

7-8	Hazard Quotients for Wildlife Based on Maximum Contaminant ⁽¹⁾ Concentrations and NOAELs
7-9	Hazard Quotients for Wildlife Based on Mean Contaminant ⁽¹⁾ Concentrations and NOAELs
7-10	Sediment Toxicity Test Results
7-11	Risk Summary
8-1	Summary of Contaminants
8-2	Summary of Risks

FIGURES

NUMBER

1-1	Site Locus
1-2	OU3 Study Area
3-1	Estimated Thickness of Fill - Area D
4-1	Sample Location Plan - Area D
4-2	Area D: Maximum Total Aroclor Concentrations, Surface Sediment, Surface Water, and Surface Soil
4-3	Area D: Maximum Total Aroclor Concentrations Subsurface Sediment and Subsurface Soil
4-4	Area D: Maximum Lead Concentrations, Surface Sediment, Surface Water, and Surface Soil
4-5	Area D: Maximum Lead Concentrations Subsurface Sediment and Subsurface Soil
4-6	Area D: Maximum Asbestos Concentrations Surface Sediment and Surface Soil
4 -7	Area D: Maximum Asbestos Concentrations Subsurface Sediment and Subsurface Soil
4-8	Sample Location Plan - Area E
4-9	Area E: Maximum Total Aroclor Concentrations Surface Sediment , Surface Water, and Surface Soil
4-10	Area E: Maximum Total Aroclor Concentrations, Subsurface Sediment
4-11	Area E: Maximum Lead Concentrations Surface Sediment, Surface Water, and Surface Soil
4-12	Area E: Maximum Lead Concentrations Subsurface Sediment

FIGURES (Cont.)

NUMBER

6-1	Human Health Risk Receptor Groups and Hot Spots
7-1	Biological Sample Locations
7-2	Primary Contaminant Pathways from the Raymark Industries Facility
7-3	Combined Amphipod Survival vs. Sediment Copper

APPENDICES (VOLUME II)

Α	ppen	dix	Α	_	Boring	Logs
, ,	PPUI	WIX.	, ,			Logo

- Appendix B Analytical Data 1 Diskette
- Appendix C Hydrologic and Hydraulic Analysis
- Appendix D Ecological Risk Evaluation Supporting Documentation (TtNUS); Ecological Risk Assessment (NOAA); Evaluation of Raymark Superfund Data for PRG Development (SAIC); Evaluation of Ecological Risk to Avian and Mammalian Receptors in the vicinity of Upper and Middle Ferry Creek (SAIC)
- Appendix E Supplemental Evaluation of Fate and Transport Processes
- Appendix F Human Health Risk Assessment Supporting Documentation

APPENDIX A
BORING LOGS

BORING LOG FOR:	RAYMARK - OU3- FERRY CREEK		BORING NO.:	D-SB01	
PROJECT NO.:	N7491-0320				—
LOGGED BY:	TRACY DORGAN	TRANSCRIBED BY:	START DATE:	7-15-97	
DRILLED BY (Company/Driller)		THANSCRIBED BY:	COMPLETION DATE:	7-15-97	
GRD. SURFACE ELEVATION:		ELEVATION FROM:	MON. WELL NO.: CHECKED BY:		_

	Γ	I		Elegents are	To per a vision sec	1 10 10 10 10 10 10 10 10 10 10 10 10 10				
DEPTH	BLOWS	SAMP	SAMPLING	DEPTH	SOIL		M. SHEGGER STORE LAND STATEMENT OF THE STATE STATE OF THE	LICCO		
(FEET)	PER	REC.	TIME	MAT'L	DENSITY/		MATERIAL	USCS	REMARKS	FIELD
i	6 -	l /		CHG./	CONSIS.	ł	CLASSIFICATION	or	(moisture condition; odors;	SCREENING
		SAMP	SAMPLE NO.	WELL	or ROCK	CLR	CLASSIFICATION	ROCK	geological classification;	DATA
1		LENG.	(QA/QC STATUS)	PROF'L	HARD.	CLA		BRKN	rock weathering; etc.)	METHOD =
	12	1.35	OU3-D-SB01-0002	FROFE	Med.	ļ.		<u> </u>		[PID, PPM]
0	33	1.00/	000-0-0002			brown	Gravelly, SAND. mostly poorly graded	SP	Dry concrete, slag +	
<u> </u>		-/-		1	Dense			1	cobbles	8.2
	26			}	Dense		f/m sand, trace silt, trace slag + concrete fill (slag is		HSA grinding + catching	
	20	2.0	0855 S-1	1	1	1 1	vesicular	1 1	on cobbles	
	15	0.4	-0204	1	Med.	 		 	0.1. 0000103	
1 2	18	/	1		Dense	1 1		1 1		10
	16		1		Delise	 			<u></u>	L
		/			1	1 1		1 1		
	8	2.0	0905 S-2	_		.		1 *		
<u> </u>	24	1.7	-0406		Med.	Gray	Gravel. Few - some fine to coarse sand, trace silt very	GM	Wet - moist in nose, broke	12
4	25		ł	1	Dense	to	dense	""	sampler, had to cut open.	14
	29	/	1		}	BLK		I	HSA to 7.0' w/out sample	
ļ i	53	2.0	0930 S-3		1			l.	to get by obstruction	
				4		<u> </u>			to get by obstruction	
I _	49	1.45	-0709	1	Very	Yellow	Saprolite ? or coarse gravel, trace few silty, fine sand,			
7	56			ŀ	Dense	Orange	gravel size fragments are easily broken apart with fingers			
	100/5"		1			to	•		-	
8.5		1.45	1000 S-4			Brown	1	i		
		7 1.40	1000 3-4	4				ļ	Fiff?	
				l	l .				HSA to 9.3' no let up in grind	ing. No break
				İ			EOB @ 9,3' bgs.		through	
				1						
				!		l				
				1			Move approx. 10-15' + re-attempt boring			
! !			ļ	1			Move approx. (0-15 + re-attempt boring	1		
<u> </u>								1		
				I						
				1				 		
	-		ĺ	1				1		
	-							↓		
1 1				1				i		
				j	L					
1				1						
[[1		j		1		
 		-		l	————					
1								1		
L				<u> </u>	l					
							EOB @ 9.3 BGS			

EOB @ 9.3 BO3			
CME 75			Tetra Tech NUS, Inc.
4.25" ID HSA			
3" OD SPLIT-BARREL DRIVEN WITH A 300 LB HAMMER			
N/A			
WATER @ 8.1' BGS W/AUGERS @ 9.3'			
	BORING NO.:	D-SB01	PAGE: 1 OF 1
	CME 75 4.25" ID HSA 3" OD SPLIT-BARREL DRIVEN WITH A 300 LB HAMMER N/A	CME 75 4.25" ID HSA 3" OD SPLIT-BARREL DRIVEN WITH A 300 LB HAMMER N/A WATER @ 8.1' BGS W/AUGERS @ 9.3'	CME 75 4.25" ID HSA 3" OD SPLIT-BARREL DRIVEN WITH A 300 LB HAMMER N/A WATER @ 8.1' BGS W/AUGERS @ 9.3'

	LOG FOR:		RAYMARK - OU3-	FERRY CRE	EK			BORING NO.	.:	D-SB01B	
PROJEC			N7491-0320					START DAT	E:	7/15/97	
LOGGED			TRACY DORGAN				TRANSCRIBED BY:	COMPLETIO	_	7/15/97	
		any/Drille	er): ATL / MIKE HAV	VKINS				MON. WELL			
GRD. St	JRFACE						ELEVATION FROM:	CHECKED B			
DEPTH	BLOWS	SAMP	SAMPLING	DEPTH	604	1000000				والمارية والمنافعة فالمنافعة	
(FEET)	PER	REC.	TIME	MATIL	SOIL DENSITY/	1	MATERIAL	USCS		ARKS	FIELD
	6*	/ /	&	CHG./	CONSIS.	1	CLASSIFICATION	ROCK		condition; eological	DATA
		SAMP LENG.	SAMPLE NO. (QA/QC STATUS)	PROF'L	or ROCK HARD.	CLR	1	BRKN	classifica	ation; rock	METHOD =
			(darac states)	FROFE	HARD.		Refer to D-SB01 for log from 8.51 HSA to 5' bgs			ring; etc.)	[PID, PPM]
0		<u>L</u>					with out sampling. 2 pieces (each approx. 6" thick by 1	o*	Severe grine chattering f		
							× 8") either slag or vesicular basalt similar to material	-	At 3', 2 pie	ces of	· · · · · · · · · · · · · · · · · · ·
<u> </u>	·	<u> </u>		4			exposed in berm lining wetlands.		vesicular ba	salt or slag flights void	
1		1							from 3.5-4'	grinding	
						 			again at 4'-	5'	
ļ						l					
5	100/3*	3" /	OU3-D-SB01B-0507	1	Very		Rock flour produced by grinding of augers + bit. White				0.3
-	100/3	- /-	1		Dense		to gray, dry and loose with trace fine arg. gravel. Talcum powder consistency.		ļ		
		3-	1410 S-1		İ						
				1					 		
		ļ									
		j					EOB @ 5'3"				
		 -		†					-		+
						L					
1	···										
				1		-		_			
				1	1						
		<u> </u>		-		 		_	 		!
		<u>L</u>									
-	 	<u> </u>		-				_	ļ		
1		1							1		
			1					- 	†		
<u></u>	l	<u> </u>		L	l	<u> </u>	<u> </u>		<u> </u>		<u></u>
TYPE OF	DRILLING R	G:								Tetra Te	ch NUS, Inc.
	OF ADVAN		NG:							10110 10	1100, IIIo.
į.	OF SOIL SA										7 .
METHOD	OF ROCK C	ORING:		-							IT
GROUND	WATER LEV	ELS:									
OTHER O	BSERVATIO	NS:					BOI	RING NO.:	D-\$801B	PAGE:	1 OF 1

BORING LOG FOR: RAYMARK - OU3- FERRY CREEK BORING NO.: D-SB02 PROJECT NO .: N7491-0320 START DATE: 7/14/97 LOGGED BY: TRACY DORGAN TRANSCRIBED BY: 7/14/97 RAC COMPLETION DATE: DRILLED BY (Company/Driller): ATL / MIKE HAWKINS MON. WELL NO.: **GRD. SURFACE ELEVATION FROM:** CHECKED BY:

OCOT!!					TO PERSONAL PROPERTY OF	A CONTRACTOR OF THE CONTRACTOR	\$ 76	orthograph seed	BANGE CONTRACTOR CONTR	والأرزون الم	2,22,31	Billia Attibuli e se	in mineral		<u> </u>
DEPTH (FEET)	BLOWS	SAMP		PLING	DEPTH	SOIL	1			USC			REMARK		FIELD
(FEE I)	PER 6*	REC.	1	ME	MAT'L	DENSITY/			MATERIAL	or	.	(mois	ture con	dition;	SCREENING
	١ ٥	SAMP		& PLE NO.	CHG./	CONSIS.	1		CLASSIFICATION	ROC			rs; geolo		DATA
	}	LENG.		STATUS)	WELL	or ROCK	1 '	CLR		BRK	N.		sification		METHOD =
	2	1.8		B02-0002	PROF'L	HARD.	↓ _			1			thering;		[PID, PPM]
0	5	\ \\ \ \	003-0-5	802-0002	Gravel +	1	brov	wn	S-1A 06' = gravelly, sand, fill. trace silt , trace glass				s held to		
<u> </u>		-/-	Į.		Sand		<u> </u>						asylcula		0
	5	/			1		dari		S-1B .6-2.0 = fill, silty sand, poorly graded	SM			s like fib	ers ,	
	4	2.0	1515	S-1	1		bro	WN	sand w/ red paint or pigment, asbestos fibers	ML		dry		- 1	
	4	2.0	i -	-0204	1		Dar	k brn	Similar to S-1B, more silt than sand, very high amount	1		dry fill		-	
2	4		1			1	Gra	у	of fibers and dark red pigment	1 1		,		ł	0
	4		1				w/r	ed		+				-	
	4	2.0	1540	S-2	1 1		blot	ches		1 1		moist, d	lama fill		
	1	2.0		-0406	1 1		+			+		moist, u	Tamp in		
4	2	1/		0400	1					1 1					
 -	1	- / -	1		1 1		+-						_	_	1.1 ppm
		//			l l	1	1	i		1 1			1		
	1	2.0	1550	S-3	Fill		ــــــ	<u> </u>							<u> </u>
	4	1.3		-0608			1			1 1		fill			0.6
6	4				1 1										1
	4]		1 1		Ι			\Box					
	5	2.0	1605	S-4]		1	İ	↓	1 1			1		
	9	1.1		-0810	8.5'		1			SP		<u> </u>	+	+	0.3
8	14		1			-	Lia	nt Gray	sand -f/m poorly graded trace fine gravel, trace metal	- T	7	l 5	▼ aturated	fitt♥	
	11	 / -	1		i			it Gruy	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	+		— <u> </u>	ataratoa		
	10	2.0	1610				1			1					
			1010	S-5	4		+			+					0.0
	9	1.65		-1012			Bla	CK	sand, well graded f-c sand, trace silt, dark gray to black,	sw		Saturate	ed, no oc	Юľ	0.0
10	19	oxdot	1				 		loose, trace - few fine gravel			<u> </u>			
	26] /			1			1		1					
	25	2.0	1620	S-6			\perp	L							
	24	1.7 /	1	-1214	1	Dense		1	Sandy, gravel, well graded gravel. Dense and tight	GW		No odo	·		0.2
12	26	1 /	1				1		trace silt	1		1			·
	37	 /-	1			Mod.	1	† –	<u> </u>	1		1		-	
	29	2.0	1630	S-7	1	Dense	1	▼		1		1			
	7	-	1030	-1416	1	Delise	Brig		sand, some fine coarse gravel. Well graded sand	sw		Bright o	xidized o	vanne	0.0
		1.9	1	-1416			1 '	•	sand, some line coarse graver. Well graded sand	1 3**		1 "	~.UI20U (u en iño	1 3.0
14	7		1			ļ	Ora	inge				color			
	17	1/			1		1		EOB @16'						
	31	2.0	1655	S-8	1		1								

TYPE OF DRILLING RIG:	CME-75		Tetra Tech NUS, Inc.
METHOD OF ADVANCING BORING:	4.25" I D HSA	_	
METHOD OF SOIL SAMPLING:	3" OD SPLIT BARREL DRIVEN WITH 300 LB HAMMER	-	
METHOD OF ROCK CORING:	N/A	-	(= L -)
GROUNDWATER LEVELS:	10.8 BGS W/AUGERS @ 14' LEVEL C @ 1515 FOR RIG GEOLOGIST. DRILLERS USING WATER		
OTHER OBSERVATIONS:	FOR DUST CONTROL	BORING NO.: D-SB02	PAGE: 1 OF 1

BORING LOG FOR:	RAYMARK - OU3- FERRY CREEK		BORING NO.:	D-SB03
PROJECT NO .:	N7491-0320		START DATE:	8/6/97
LOGGED BY:	TRACY DORGAN	TRANSCRIBED BY:	COMPLETION DATE:	0,0,0,
DRILLED BY (Company/Drille	r): ATL / MIKE HAWKINS		MON. WELL NO.:	· · · · · · · · · · · · · · · · · · ·
GRD. SURFACE		ELEVATION FROM:	CHECKED BY:	

		T	I		[10] (10) (10) (10) (10) (10) (10) (10) (10)	THE PERSON NAMED IN	I . * 1,250*					_
DEPTH	BLOWS	SAMP		PLING	DEPTH	SOIL			ÜS	CS	REMARKS	FIELD
(FEET)	PER	REC.		ME	MAT'L	DENSITY/		MATERIAL		or	(moisture condition:	SCREENING
	6"			&	CHG./	CONSIS.	İ	CLASSIFICATION	RC	CK	odors; geological	DATA
1		SAMP	SAMP		WELL	or ROCK	CLR		BF	RKN	classification; rock	METHOD =
	 	LENG.	(QA/QC		PROF'L	HARD.	L				weathering; etc.)	[FID, PPM]
1 -	1	18	003-0-5	B03-0002				Silty sand, few coarse subang, gravel poorly graded	SP		grinding boney from	
0	1						BR	org. debris (roots + plant fiber in top 6")	l		1 bgs - 4' dry	lo
	3] /				_					moist in nose	
	4	/ 24	1245	S-1			ł					1
	3	9 /		-0204			Gray	Fill. Concrete and brick fragments few - little med. coarse	filt		Saturated in nose	0
2	. 3	1 /	ļ				'	sand, tr. charcoal			Catalata III 11030	١
	3		1			-	 		├{			
	6	/ 24	1258	S-2	Fill		1		ll			
	2	6		-0406	7		1		┝		saturated	
4	2	1 /		0400					ΙI		Wire (copper) on bit betw. 4-8'	0
<u> </u>	8	 /-	1			-			ш		Detw. 4-8	
	3	/	1.000				l l	1	IJ			į.
		/ 24	1308	S-3	6'2"		<u> </u>	<u> </u>				
١.	1	13		-0608			BR	Silt, few fine sand, a large qty of plant roots and	I		sulfide odor black silt @	21
6	1		1		Silt		<u>L</u>	fibers			contact with fill	ł
}	1											
	1	/ 24	1315	S-4	8'1"							į
	1	13 /		-0810	Sand		gray	Sand, mostly f-c well graded	SW		Saturated	5
8	2						- '	sand, tr. fine rounded gravel, tr. silt				1
	1		1				h		-			
	1	24	1322	S-5								İ
····	1	22 /	1000	-1012			brown	ind around a familiaring			Con-marked	55
10	2	- /		1012			Diowii	incl. gravel = few gravel			Saturated	55
	6	 / -	ł				 		Щ			
		//										
	6	/ 24	1330	S-6								
	2	18 /		-1214	ļ				ll		saturated	0
12	4]	į			Gray	<u> </u>				<u> </u>
	5		1						П			
	3	24	1340	S-7								
	3	23		-1416					Н			15
14	4	1 / 1	1	-				1				
	5	/	l .				 		H	_		
16	4	/ 24	1345	S-8			↓	▼ FOD € 161	١, ١	7		
			1373	3-0	L		L	EOB @ 16'			l	<u> </u>

TYPE OF DRILLING RIG:	CME-850 ATV		Tetra Tech NUS, Inc.
METHOD OF ADVANCING BORING:	4.25" I D HSA	-	
METHOD OF SOIL SAMPLING:	3" OD SPLIT BARREL DRIVEN WITH 300 LB HAMMER	-	
METHOD OF ROCK CORING:	N/A	-	
GROUNDWATER LEVELS:	WATER @ 5.5'	-	
OTHER OBSERVATIONS:		BORING NO.: D-SB03	PAGE: 1 OF 1

BORING LOG FOR: RAYMARK - OU3- FERRY CREEK **BORING NO.:** D-SB04 PROJECT NO .: N7491-0320 START DATE: 7/10/97 LOGGED BY: TRACY DORGAN TRANSCRIBED BY: **COMPLETION DATE:** 7/10/97 DRILLED BY (Company/Driller): ATL / PAUL DAVIS / MIKE HAWKINS MON. WELL NO .: No Well GRD. SURFACE **ELEVATION FROM:** CHECKED BY:

				The Park Property of the	Magazine, Company	. U. Marine, Marin	Participation of the Control of the		Market and resident to the same	A care markets about 1 to 100	
DEPTH (FEET)	BLOWS	SAMP	SAMPLING	DEPTH	SOIL				USCS	REMARKS	FIELD
(FEEI)	PER 6"	REC.	TIME	MAT'L	DENSITY/		MATERIA		or	(moisture condition; odors;	SCREENING
	٥ ا	SAMP	& SAMPLE NO.	CHG./ WELL	CONSIS. or ROCK	CLR	CLASSIFICA	ATION	ROCK	geological classification;	DATA METHOD =
		LENG.	(QA/QC STATUS)	PROF'L	HARD.	CLA	1		BRKN	rock weathering; etc.)	(PID.)
0		1.3	OU3-D-SB04-0002	Asphalt						HSA .5' then drove s.s to	(1.0,
	4				1		2" asphalt at surface			2.0'	O ppm
	15			}						lower foot more dense	
2	13	/ 1.5	1410	<u> </u>		BRN	Gravelly, sand, tr. silt, well grade	d	sw		
	10	1.7	-0204	}		1 1		tr. wood and asphalt			0 ppm
	22						1			1	
	23			<u> </u>			ļ				<u> </u>
4	18	2.0	1425								
	4	0.75	-0406	1				fill incl. metal and glass	l	saturated	O ppm
	4	- / -	1			 			├-		
6	2	2.0	1450			l 1		,	1 1	ĺ	
0	2	0 /	No Sample	1		<u> </u>	No sample, no recovery		- *	coarse gravel in nose	no samole
	3		No Sample				No sample, no recovery		Ì	Coarse graver in 11096	110 sampio
	2	/	No Recovery		-	 	 		-	 	
8	2	2.0	"""]		
	2	0.8	-0810	1		BLK	silty, gravelly sand, fill incl. glass	, rubber wire metal and	sw	gasket material (thin	2.5 ppm
	1	/	ļ		i		poss.gasket material		Ι.	fibrous paper like material)	
	2		1				 			It. pet. odor	
10	2	2.0	1510		Ì		l				
	2	1.2	-1012	7			1 large piece of wood (tree trunk	or limb)	1 1		1.5 ppm
	3			į.							
	4			1			1		1 1	1 1	
12	6	2.0	1530	1							
	3	0.75	-1214			1 1		*	1 I		2.0 ppm
	2		1	1			 		 	+	2.0 ppm
١.,	3	2.0	1545			↓	▼	\	+	1 1	
14	WOR	1.9	-1416	1	1	Dk	Silt, some fine sand, trace clay to	race class and ceramic	ML	trace glass + china/	0.2 ppm
	2	1.8	1 1416		ì	Gray	fragments trace wood	8		ceramic frags, peach pit in	, ,
	2	 / 	1	i	-	1,	<u> </u>	····		nose	
16	3	2.0	1600		1	1	EOB @ 16'			1	

TYPE OF DRILLING RIG:	CME-75			Tetra Tec	h NUS	S, Inc.
METHOD OF ADVANCING BORING:	4.25" I D HSA					١ .
METHOD OF SOIL SAMPLING:	3" OD SPLIT BARREL DRIVEN WITH 300 LB HAMMER				} -	
METHOD OF ROCK CORING:	N/A				L	J
GROUNDWATER LEVELS:	4.6' BGS W/HSA TO 12' MEASURED INSIDE PIPE					
OTHER OBSERVATIONS:		BORING NO.:	D-SB04	PAGE:	1	OF 1

BORING LOG FOR:	RAYMARK - OU3- FERRY CREEK		BORING NO.:	D-SB05	
PROJECT NO.:	N7491-0320		START DATE:	7/11/97	
LOGGED BY:	TRACY DORGAN	TRANSCRIBED BY:	COMPLETION DATE:	7/11/97	
DRILLED BY (Company/Drille): ATL / MIKE HAWKINS, PAUL DAVIS		MON. WELL NO.:	N/A	
GRD. SURFACE		ELEVATION FROM:	CHECKED BY:		

	ſ		<u> </u>	Additionally course of the	POPURED PARKETS AND A PRO-	atha salain de alte andas est	Marie Carlos and Carlos Military and a second of the control of the control of the control of the control of the	- 150 Calle and	al the and a second of the control o	M
DEPTH	BLOWS	SAMP	SAMPLING	DEPTH	SOIL			USCS	REMARKS	FIELD
(FEET)	PER	REC.	TIME	MAT'L	DENSITY/	l	MATERIAL	or	(moisture condition;	SCREENING
	6"	/	6	CHG./	CONSIS.	ľ	CLASSIFICATION	ROCK	odors; geological	DATA
	1	SAMP	SAMPLE NO.	WELL	or ROCK	CLR		BRKN	classification; rock	METHOD ≈
	ļ	LENG.	(QA/QC STATUS)	PROF'L	HARD.	<u> </u>	3" Asphalt at surface		weathering; etc.)	[PID, PPM]
	ļ	1.3	OU3-D-\$B05-				Sand some fine subrounded gravel			
0	4			!		BR	trace silt, sand is well graded	sw	dry and foose	1.0
	13		1	l.				i		1
2	15	1.5	0810	1						
	10	1.2 /	-0204	1		LightBrown	.5' = sand, poorly graded, trace gravel	SP		
	9	1 /				Gray	.7' = sandy, gravel trace silt, gravel fine - coarse	"	dry and loose	2.0
	8	/	1	1		0.0,		GM	Gry and loose	1
4	5	/ 2.0	0820	ļ				""	1	
	6	1.1	-0406	•		ļ	sand well graded, some subrounded	sw	water table (sat.) @	2.0
	4			[gray	f-c gravel	""	~5' bgs slight pet. or	1.0
	1	-/				Dark	1-c graver	- 	asphalt odor noted	
6	2	2.0	0830			1				
	2	4 /	-0608			gray		+	+	2.0
	1	' /	-0008	i					1	2.0
	↓	- / -						\bot	1	ļ
_	1	/							1	1
8	2	2.0	0845							
	3	.3 /	-0810						1	1.3
	2									
	1			1			*			ļ
10	2	2.0	0855	Fill		↓	trace glass and wire noted fill	1 1	1	
	5	.6	-1012	j		Dk	sand, some subrounded		hydrogen sulfide odor	0.5
	3	1 /		1		Gray	f-c gravel, few silt, root and vegetation debris			
	2					1	tr. clay		<u> </u>	
12	1	2.0	0900					- - -		
	1	1.3 /	-1214	j		 	.5' = sand poorly graded trace glass and metal	SP	fill	0.3
	1	" <i> </i>		12.5′-13′			fill	"	1 ****	5.5
	1	/		12.5 - 15			.8' = silt, some fine sand, no glass found trace roots	ML	plant fibers	
14	2	2.0	0915				plant fibers , tr. clay	ML	Prent libers	1
14	+ -	1.7	-1416	}			plant hous , tr. clay	++-		0.3
	 	'' /	-1416					1 1	1	0.3
	1	- /]				+		
	2	/				l I	V		1	1
16	2	2.0	0920	l			EOB @ 16'		1	

TYPE OF DRILLING RIG:	CME-75 (truck)			Tetra Tech NUS, Inc.
METHOD OF ADVANCING BORING:	4.25" I D HSA	•		
METHOD OF SOIL SAMPLING:	3" OD SPLIT BARREL DRIVEN WITH 300 LB HAMMER			
METHOD OF ROCK CORING:	N/A			
GROUNDWATER LEVELS:	11.5' BGS W/AUGERS @ 16'			
OTHER OBSERVATIONS:		BORING NO.:	D-SB05	PAGE: 1 OF 1

BORING LOG FOR:	RAYMARK - OU3- FERRY CREEK		BORING NO.:	D-SB06
PROJECT NO.:	N7491-0320	_	START DATE:	7-16-97
LOGGED BY:	TRACY DORGAN	TRANSCRIBED BY:	COMPLETION DATE:	7-16-97
DRILLED BY (Company/Driller):	ATL / MIKE HAWKINS		MON. WELL NO.:	
GRD. SURFACE ELEVATION:		ELEVATION FROM:	CHECKED BY:	

						2011-125-1			· · · · · · · · · · · · · · · · · · ·	Contract Contract	The state of the s					
DEPTH	BLOWS	SAMP	SAMPLING	3	DEPTH		OIL					USC	s	landida en 184 desembled	REMARKS	FIELD
(FEET)	PER 6"	REC.	TIME		MAT'L		ISITY/			1	MATERIAL	or			e condition; odors;	SCREENING
1	6"	SAMP	& SAMPLE N	_	CHG./		NSIS.	_ ا			CLASSIFICATION	ROC			ical classification;	DATA
1		LENG.	(QA/QC STAT		WELL PROF'L		ROCK TARD.	ا	LR			BRK	N	rock	weathering; etc.)	METHOD =
-	15	19 /	OU3-D-SB06-00		FROFE	Dens		BR		Gran	velly sand, trace silt fill trace asphalt crumble			laaaa d		(PID (PPM))
0	32	~ /	0000000		!	Cons		"``		""	reny sano, trace sit ini trace aspirali crumole		1		ry, no odors	ا ۱
	35	-/-			[_		┝			-	non gri	nding 1-3"	
1	23	24	0930	S-1	f I					ŀ						
	11	21 /		0204	i I	Med.		Mot	tlad	Gran	velly sand, trace fen. silt, fill included charcoal,				ntity of fill	5 ppm
2	16	- /		0207	!	Dens		Brov			nalt wood, glass + metal in trace amounts				xcept asphalt +	5 ppm
	23	/				Della		and		aspi	rait wood, glass + metarin trace amounts				which are more	
	18	24	0940	S-2				blac	:k				[prevelar		
	7	20		0406	1 1	-		Dark		Fina	sand, little some fine gravel, trace silt	SP	-	Cimilar	debris to 0204.	5 ppm
<u> </u>	10	1 2	_	0400				Gray			d is poorly graded, fill	3r			eavy pet. odor?	5 ppiii
<u> </u>	16	 / -				+		Gia	I I		debris incl. charcoal, glass + china/ceramic			moist, ii	eavy per. odorr	
	16	24	0958	S-3		1		ŀ			etation and root mat. @ 5-5.5"		- 1			
-	9	12 /		0608	{	loose		_	┢	·	ilar to S-3 above, but no vegetation, less gravel				uration in nose	2-4 ppm
6	5	" /		0000		10086	,				ottom		l	11001 301	Uration in nose	2-4 pp
٢	7	 / 						-	_	- QU ()	ottom	\rightarrow	\dashv			
	5	24	1005	S-4						ļ		- 1				
-	1	10 /		0810	{	Verv		_		-				saturate		1-2 ppm
8	2	'゜		0010	i !	Loos						- 1	ı	38(U) 8(6	u	1-2 pp
1	1	 / 				LOOS	-	-	├			+				
1 1	2	/24	1020	S-5]					İ			- 1		1	
	2	9 24		1012	i :			-	\vdash	 	wood debris, vitrified clay fragments and glass					0
10	3		-	1012					1	1	wood debris, vitilled clay magniferits and glass	- 1				"
10	3	 / 	ł			-		-				-+	\dashv			
	3	24	1035	S-6						١,			- 1	,	Ļ	
-	2	9 /		1214	1	-		-	-	Con	d, fc well graded, trace silt			Mondy	incl. twigs and	0
1			·	1214							·	sw		• •	•	ľ
12	2	- / -			{				<u> </u>	trac	e fine gravel, fen, little wood fill	244			s, also 1 piece	
	2	/	4045		1			Ι `	▼	1				slag		
	3	24	1045	S-7	4	\vdash		1								E nom
1	1	24	l .	1416				gray	′	Silt	some fine sand, fill trace glass and ceramic debris.	ML				5 ppm
14	1	_/_]			Ь.								
	1	/	l		[]		_	1								İ
16	1	24	1055	S-8	Fill											

TYPE OF DRILLING RIG:	CME 75		Tetra Tech NUS, Inc.
METHOD OF ADVANCING BORING:	4.25" ID HSA	•	
METHOD OF SOIL SAMPLING:	3" OD SPLIT BARREL W/300 LB HAMMER		
METHOD OF ROCK CORING:			(= L -j
GROUNDWATER LEVELS:	14' W.AUGERS @ 14'		
OTHER OBSERVATIONS:	START @ 0920	BORING NO.: D-SB06	PAGE: 1 OF 1

BORING LOG FOR:	RAYMARK - OU3- FERRY CREEK		BORING NO.:	D-SB07	
PROJECT NO.:	N7491-0320		START DATE:	7/16/97	
LOGGED BY:	TRACY DORGAN	TRANSCRIBED BY:	COMPLETION DATE:	7/16/97	-
DRILLED BY (Company/Driller	r): ATL / MIKE HAWKINS		MON. WELL NO .:		
GRD. SURFACE		ELEVATION FROM:	CHECKED BY:		

16	1	2.0	1410	S-8	L			_ ▼	\perp	EOB @ 16'	_l`	▼	▼	
	1]				T^{-}	П	\Box			Π	1	
14	1	1	1			1				<u> </u>		Ш		1 ppm
	 	1.8	1333	-1416	1	<u> </u>	+-	 	\dashv		+	\vdash		
	 	2.0	1355	S-7								H	İ	
12	1	/					- 	1	-+		+	₩		1 ppm
12	1	1.3		-1214							- [[1 000
	1	2.0	1340	S-6		<u> </u>	+	 	-	trace organic matter (plant fibers)		119	organic matter	
	1	/			of fill							$\ \ ^{-}$		
10	1				bottom			Gray	┙			r	noted below 10.2	2 ppm
	2	1.6		-1012	Poss.			Dk	\neg	silt, mostly silt, trace fine sand	ML	7	no man made debris	
	1	2.0	1330	S-5	10.2	Loose	•		.			f	fill inc. copper wire	1
	1	/				7,5.7		 	\dashv		+-	+-		
8	2	1"/		-0610		Very				similar to S-4	1			4 ppm
	3	0.2	1310	S-4 -0810	1			\vdash	+		+	+		
	16	/	4340		[-			
6	10					Dense	•		\rightarrow	newsprint		4	newspaper near nose	
	5	2.0		-0608	1	Med.		\Box	7	fill - gravelly sand, similar to S-2, black, fill debris incl.		8	saturated	10 ppm
	4	2.0	1250	S-3		1	7		-		1			
	5	/							+	materials w/ pet. 000f	 	+-	bottom is saturated	65 ppm
1	5	1.6	DUP	-0406				1		fill - similar to S-2, bottom 3" are asphalt shingle like materials w/ pet. odor		٠ ١	pet. odor	ØE
	6	2.0	1240	S-2				<u> </u>	4			_	vitrified clay, slag	ļ
	5							BL	7	f-c sand, tr. silt ,bottom 2" black charcoal			glass, metal charcoal tile,	
2	5							↓	.	g,, g		- ["	noise, in moi.	"
	4	1.6	7223	-0204	1	Loose		 	+	Fill - gravelly sand, well graded	+		one piece cobble moist, fill incl.	8 ppm
	13	2.0	1225	S-1				brown		Few fine gravel, trace silt, glass vit. clay & org. debris	-[Vit, clay or brick, glass	
<u> </u>	15	/				Med.		to dark				_	Dry, no odor	7 ppm
	6	1.6	OU3-D-S	807-0002				brown		Fill - sand, poorly graded fine sand	SP			(, , , , , , , , , , ,
		LENG.		STATUS)	PROF'L	HA	IOCK RD.	CLR	1		BRKN	'	rock weathering; etc.)	METHOD (PID, (PPA
	6"	/ SAMP		& PLE NO.	CHG./ WELL	CON			1	CLASSIFICATION	ROCK		geological classification;	DATA
(FEET)	PER	REC.	TI	ME	MAT'L		SITY/	Ì	-	MATERIAL	or		(moisture condition; odors;	SCREENIN
DEPTH	BLOWS	SAMP		PLING	DEPTH		DIL				USCS		REMARKS	FIEL

	200 € 10			
TYPE OF DRILLING RIG:	CME-75			Tetra Tech NUS, Inc.
METHOD OF ADVANCING BORING:	4.25" I D HSA			
METHOD OF SOIL SAMPLING:	3" OD SPLIT BARREL DRIVEN WITH 300 LB HAMMER	_		
METHOD OF ROCK CORING:	N/A			[= 6]
GROUNDWATER LEVELS:	12.0' W/HSA @ 14' BGS	_		
OTHER OBSERVATIONS:		BORING NO.:	D-SB07	PAGE: 1 OF 1

BORING LOG FOR: RAYMARK - OU3- FERRY CREEK BORING NO.: D-SB08 PROJECT NO .: N7491-0320 START DATE: 7/11/97 LOGGED BY: TRACY DORGAN TRANSCRIBED BY: COMPLETION DATE: 7/11/97 DRILLED BY (Company/Driller): ATL / MIKE HAWKINS / PAUL DAVIS MON. WELL NO .: GRD. SURFACE **ELEVATION FROM:** CHECKED BY:

DEPTH RECH	050711				and the second	Marian Company		-regires	1 1 10 10 10 10 10 10 10 10 10 10 10 10	DATES AND THE STATE OF THE STAT					
SAMP SAMP	DEPTH	BLOWS	SAMP	SAMPLING	DEPTH						USC	S	REMA	RKS	FIELD
SAMP SAMP E NO CAPOC STATUS PROFIL PR	"""		REC.				1		l						
LENG. CALACC STATUS PROFIL HARD. Calastification; rock MARD. Calastification; rock MARD. Calastification; rock CALACC STATUS CALACCC STATUS CALAC	}	ľ	SAMP				١.,	_		CLASSIFICATION					
1		1					UL	.н			BRK	N	classificat	ion; rock	
0 2		1			11.01 -	TIAND.	brow	-	good som	e elle Ell				ig; etc.)	
2 3 2.0 1040	0	2					1 0.00	***	Sand, Som	e sut, mi	SM		dry and loose		1.0
S		5	/	1			-		<u> </u>						
Section Sect	2	9	/2.0	1040			1								
A		9					┝─┤		<u> </u>			L			
A A C C C C C C C C			5.5	- 0204						trace broken glass			glass fragmen	ts	0 ppm
4 6			-/-	1			H				<u> </u>	_			
1	4		/20	1100								1	l		
Saturated Satu							\vdash		ļ		L	_			
1			0.3	-0406			1 1			saturated	ł			-4' loose	0 ppm
6 2	—		/	1								L	.∇ @ ~4'	<u> </u>	
1	6		/20	l						i	1				
Solution Solution	-						\vdash				Ļ	_			
Silt few fine sand, trace clay trace glass fragments Silt few fine sand, trace glass fragments Silt few fine sand, trace glass fragments Silt few fine sand, trace glass fragments Silt few fine sand, trace glass fragments Silt few fine sand, trace glass fragments Silt few fine sand, trace glass fragments Silt few fine sand, trace glass fragments Silt few fine sand, trace glass fragments Silt few fine sand, trace glass fragments			0.0	-0608							1				0 ppm
8 3			/	-			\vdash			fragments glass and wire					
1	•		/	l <u>-</u>					,	<u> </u>					
Silt few fine sand, trace clay trace glass fragments ML Oppm	<u> </u>											<u> </u>		<u> </u>	
10 2 2.0 1130		<u> </u>	0.7	-0810			BLK								
10 2 2.0 1130 1 0.9 -1012 1 2 2 2.0 1140 1 1 1.4 -1214 1 4 2.0 1155 1 1 1.9 -1416 1 1 3 2.0 1205 1 1 2.0 1205 1 1 30 1 1 30 1 1 40 1 1 40 1 1 50 1 1 50 1 1 1.9 -1416							<u> </u>		Silt few fir	ne sand, trace clay trace glass fragments	ML				0 ppm
1 0.9 -1012 trace glass fragments hydrogen sulfide odor 0 ppm	1.0		/												
1	10	 -					$\sqcup \bot$						glass		
1			0.9	-1012					l 1	trace glass fragments			hydrogen sulfi	de odor	0 ppm
12		<u> </u>					L.I.				1				
1	1														
2	12	2	/ 2.0	1140							Ì				
14 2 2.0 1155		1	1.4	-1214						trace roots and shell					0.5 ppm
14		2		i '						fragments					
1 1.9 -1416 2 2 2 0 1205		2	7												
1 1.9 -1416 1 2 2 2 1 2.0 1205	14	4	2.0	1155]	trace glass fragments		l			1
16 3 2.0 1205		1	1.9	-1416								 			
16 3 2.0 1205		1					♦								
16 3 2.0 1205		2		1					<u> </u>		 	\vdash			
	16	3	2.0	1205					▼	+	١ ،	,	,	,	
		<u> </u>							EOR 6	16'	·		L		L

TYPE OF DRILLING RIG:	CME-75 TRUCK MOUNT			Tetra Te	ch NU	S, Inc	
METHOD OF ADVANCING BORING:	4.25' I D HSA					\	
METHOD OF SOIL SAMPLING:	3" OD SPLIT BARREL DRIVEN WITH 300 LB HAMMER				7.		
METHOD OF ROCK CORING:] [Ļ	,		
GROUNDWATER LEVELS:	WATER LEVEL MEAS. INSIDE HSA @ 14' BGS W/AUGER IN SILT						
OTHER OBSERVATIONS:	* USING POLY BAGS IN NOSE OF SAMPLER TO IMPROVE RECOVERY BELOW WATER TABLE	BORING NO.:	D-SB08	PAGE:	1	OF	1

BORING LOG FOR:	RAYMARK - OU3- FERRY CREEK		BORING NO.:	D-SB09	
PROJECT NO.:	N7491-0320		START DATE:	7/10/97	
LOGGED BY:	TRACY DORGAN	TRANSCRIBED BY:	COMPLETION DATE:	7/10/97	
DRILLED BY (Company/Drille GRD, SURFACE	er): ATL / MIKE HAWKINS, PAUL DAVIS		MON. WELL NO.:	No Well	
GIO. SON ACE		ELEVATION FROM:	CHECKED BY:		

DEPTH	BLOWS	SAMP		The second second second	2 5 42 100 A.	decision to do to		AT BOUR OF SALES	Marie Land Control of the Control of	
(FEET)	PER 6"	REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock	FIELD SCREENING DATA METHOD =
			1= == == ==============================	71101 2	nano.	 	Asphalt and road bedding	-	weathering; etc.)	[PID]
0]				2" asphalt w/ gravel/asphalt brown			
1	 	ł								
<u> </u>	 	1.8	OU3-D-SB09-0103			Dk	fill gravelly sand 2" thick			
1	3					gray	asphalt and 2" thick wood below 2.5"	SP	Saturated @ 2-2.5' wood, asphalt and	2.5 ppm
_	3]						concrete debris noted	2.5 pp
3	10	.5	1230			<u> </u>				
3	7	'	-0305		1	Dk Gray	fill, gravelly sand with 2" thick asphalt, black, saturated	SP	Saturated, asphalt odor	0 ppm
	9					Glay				
5	8	2.0	0920							
5	5	.5	-0507			Dk	Gravelly sand, poorly graded, dark gray - black	SP	Saturated asphalt odor	0 ppm
<u> </u>	3	/	1			Gray		-		ļ
7	3	2.0	0935		Loose		<u> </u>			
	3	.5	-0709		1					0 ppm
7	1				<u> </u>	ļ ļ		1		
9	2	2.0	0940				↓	+		İ
	1	.3 /	-0911				gravel, trace med. course sand, trace glass	GM		0 ppm
9	1				<u> </u>		fragments, fill .			
••	1	/				1				
11	1	1.6	1130 -1113			-	2 similar to above	ML	1 piece clear glass in silt	2.5 ppm
11	2	1 7				 	silt some fine sand, tr. clay	IVIL	i prece clear glass in sit	2.5 pp
	1		1			Tan	tan-gray - 1piece glass in silt			
13	2	2.0	1140			Gray				
13	WOR	2.0	-1315						1	3 nom
,,,	2	/	DUP		· · · · · · · · · · · · · · · · · · ·	 		- - -		3 ppm
15	2	2.0	1200 1210			+	↓	+	1	
	500 100 5						EOB @ 15'			

TYPE OF DRILLING RIG:				Tetra Te	ch NU	S, Inc	5.
METHOD OF ADVANCING BORING:	4.25" I D HSA	-			_	\	
METHOD OF SOIL SAMPLING:	3" OD SPLIT BARREL DRIVEN WITH 300 LB HAMMER	_			η_		
METHOD OF ROCK CORING:	N/A	-			L	J	
GROUNDWATER LEVELS:							
OTHER OBSERVATIONS:		BORING NO.:	D-SB09	PAGE:	1	OF	1

(

	_	
Pi	01	_

Brown & Root Environme	ntal	SAMPLE LOG SHEET - SOLID PHASE						
Site Name: RAYMARK Sample ID: Ou3 - 0-50	043- Forny	CREEK.	B R	B&R Job No./PMS <u>749/ -0320</u> Replicate/Duplicate No.:(if applicable)				
Sample Method: Status Country Hand Auger Depth Sampled: 0-2 feet Sample Date & Time: 7 /23 / 97 1/30 hours Dup hours Sampler(s): Great Dicease Country Movine Data Recorded By: Signature SAMPLE DATA/REMARKS: Alternated a Care to be near the river. Collected Sample after 4 h			nours	TYPE OF SAMPLE: (Check all that apply) Soil Trip Blank* Sediment Rinsate Blank* Lagoon/Pond Field Duplicate collected Grab Other (Specify): Other (Specify): (Include sample source & lot no.) Description: (Sand, Clay, Muck, Peat, Dry, Moist, Wet, Etc.) Sitt & fine Send, trace, Sm gravel, lift; Cox & Sand Done nect Send, trace, Shells & acquait matter				
Attempted a Care Sub	e neer the siver. Co	llecteit Sumple			ts due to			
ANALYSIS	BOTTLE LOT NO.	TEMP (oC)	SPECIFIC CONDUCTIVITY (mmhos/cm)	pH STANDARD UNITS	TURBIDITY NTU	DISSOLVED OXYGEN (mg/L)	SALINITY	
LOAD & CORFER TAZ METALS X SVOC X DEST / PLB X DIOVIN SPLP METALS TOL. X GRAINSIZE ATTERBAL (INIT. ASBESTOS X DCB HOMOLOGUE								

BER FORM 0005

4	~	
		of

							Pc of
Brown & Root Environ	Root Environmental SAMPLE				SOLID PH	ASE	
Site Name: RAYMAR Sample ID: Ou3 - 0	Site Name: RAYMARK Ou3- FORMY CREEK. B&R Job No./PMS 7491-0320 Replicate/Duplicate No.:(if applicable)						
Sample Method: Server for Hand Auger Depth Sampled: 0-2" feet Sample Date & Time: 7/23/97 0920 hours Sampler(s): Sampler(s): Gerry Mora			Soil Sediment Lagoon/Poi	E: (Check all that Trip Rins nd Field	it apply)		
Data Recorded By:	Signature			Description: (Sa	nd, Clay, Muck,	Peat, Dry, Moist, W	
SAMPLE DATA/REMARKS:							
ANALYSIS	BOTTLE LOT	NO. TEMP (oC)	SPECIFIC CONDUCTIVITY (mmhos/cm)	pH STANDARD UNITS	TURBIDITY NTU	DISSOLVED OXYGEN (mg/L)	SALINITY
LEAD & CORPER	<u></u>					·····	
TAR METALS X							
SVOC X					· · · · · · · · · · · · · · · · · · ·		
DEST / DEB X							
Diexin							
SPLP METALS							
Toc. X					-		-
GRAINSIZE X							
ATTERBURY (INIT	X						
ASBESTOS X							
PCB HONOLOGUE				<u> </u>			
&R FORM 0005							

Pe.	 of	

Brown & Root Environme		SAMPLE LOG SHEET - SOLID PHASE					
Site Name: RAYMARK Sample ID: Du3 - D-Si		B&R Job No./PMS					
Sample Method: Status for Hand Auger Depth Sampled: 2-7 feet Sample Date & Time: 7 123 1 97 0930 hours Dup hours Sampler(s): Croft O.Cinja			TYPE OF SAMPLE: (Check all that apply) Soil Trip Blank* Rinsate Blank* Lagoon/Pond Field Duplicate collected Grab Other (Specify): (Include sample source & lot no.)				
Data Recorded By:	Signature				nd, Clay, Muck, F	eat, Dry, Moist, W /	et, Etc.)
SAMPLE DATA/REMARKS:							
ANALYSIS	BOTTLE LOT NO.	TEMP (oC)	SPECIFIC CONDUCTIVITY (mmhos/cm)	pH STANDARD UNITS	TURBIDITY NTU	DISSOLVED OXYGEN (mg/L)	SALINITY
LOAD & CORPER TAL METALS X SVOC X PEST / PLB X DIOXIN SPLP METALS TOC X GRAINSIZE X ATTERBURY (INITS ASBESTOS X							
PCB HONO LOGUE BBR FORM 0005	<u> </u>	<u>.</u> U					

	ı		
D.		-4	
Pa		01	

	in the second se	ol		
Brown & Root Environmental	SAMPL	E LOG SHEET - SOLID PHASE		
Site Name:		B&R Job No./PMS 7491-0320 Replicate/Duplicate No.:(if applicable)		
Sample Method: Han Augir Depth Sampled: 0-2 teet Sample Date & Time: 7 123 197 694 Sampler(s): Coff Di Cins , Gurlay	Dup hours	TYPE OF SAMPLE: (Check all that apply) Sóil Trip Blank* Sediment Rinsate Blank* Lagoon/Pond Field Duplicate collected Grab Other (Specify): [Include sample source & lot no.]		
Data Recorded By: Signature		Description: (Sand, Clay, Muck, Peat, Dry, Moist, Wet, Etc.) Black silt for some My. Inc. fine sand		
SAMPLE DATA/REMARKS:				
ANALYSIS BOTTLE	LOT NO.			
THL Metals X SUBC X PEST/PCB X DIBXIN		•		
SPLP METALS TOC X GRAIN SIZE				
ATTERBURG LIMITS AS BESTOS X PCB Homoboue				

		1		Paol
Brown & Root Environmer	ntai	SAMPL	E LOG SHEET - SOLID PH	ASE
Site Name: RAYMAR Sample ID: OU3 - D-5	K 043-FERRY DO20-0204	CREEK	B&R Job No./PMS 749 Replicate/Duplicate No.:	I - 03 20 (if applicable)
Sample Method: Hand Aug Depth Sampled: 2-Y teet Sample Date & Time: 7 /23 /4 Sampler(s): Gast Victoria Data Recorded By: SAMPLE DATA/REMARKS:	000	phours	Sediment Rin Lagoon/Pond Fiel Grab Oth	Blank* sate Blank* d Duplicate collected ler (Specify): clude sample source & lot no.) Peat, Dry, Moist, Wet, Etc.)
ANALYSIS Lead & Copper THE METALS X SUBC V PEST/PCB Y DIGX/N SPLP METALS TOC X GRAIN SIZE HITERBURG LIMITS AS BESTOS X PCB HO MO b QUE BAR FORM 0005	BOTTLE LOT NO.			•

		1,	•	
Brown & Root Environm	pental	SAMPI	LE LOG SHEET - SOLI	D PHASE
	2K OU3-FERA 5003-0002-R	ry Creek	B&R Job No./PMS Replicate/Duplicate No.:	7491-0320 (if applicable)
Sample Method:	1020 Jm 197 - 0810 hours	Dup hours	TYPE OF SAMPLE: (Chec Soil Sediment Lagoon/Pond Grab Description: (Sand, Clay, Long Sand, Hace argan Some med, Send, Pon	Trip Blank* Rinsate Blank* Field Duplicate collected Other (Specify): (Include sample source & lot no.)
SAMPLE DATA/REMARKS:	oa a-aft on the 1	75 \$ 0-4 ft on the	irth difficulty due to	book, rebu den crete
ANALYSIS Lead & Copper THE METALS X SUBC X PEST/PCB X DIOXIN X SPLP METALS TOC X GRAIN SIZE HITERBURG LIMITS AS BESTOS X	BOTTLE LOT NO.			

(if applicable)

SAMPLE LOG SHEET - SOLID PHASE				
3-FERRY CREEK 1-R	B&R Job No./PMS 7491-0320 Replicate/Duplicate No.:(if applicate)			
Shours Dup hours	TYPE OF SAMPLE: (Check all that apply) Soil Trip Blank* Sediment Rinsate Blank* Lagoon/Pond Field Duplicate collected Other (Specify): Illnclude sample source & lot no.) Description: (Sand, Clay, Muck, Peat, Dry, Moist, Wet, Etc.) Med-cause Sand, Sm-med gave (Same)			
0-2 Sample.				
	3-FERRY CREEK			

Brown & Root Environme	ntal	SAMPLE LOG SHEET - SOLID PHASE								
Site Name: <u>RAYMARK</u> Sample ID: <u>Ou3 - 0-5</u>	04-0002		B&R Job No./PMS 7491 - 0320 Replicate/Duplicate No.: (if applicable)							
Sample Method: Serient Con Ture Depth Sampled: 0-2 feet Sample Date & Time: 7 1221 91 1547 hours Sampler(s): Creff Di Crus, County Most Data Recorded By: Control Signature TYPE OF SAMPLE: (Check all that apply) Soil Trip Blank* Sediment Rinsate Blank* Lagoon/Pond Field Duplicate collected Grab Other (Specify): Description: (Sand, Clay, Muck, Peat, Dry, Moist, Wet, Etc.) Description: (Sand, Clay, Muck, Peat, Dry, Moist, Wet, Etc.)										
SAMPLE DATA/REMARKS: Ten 2,9 2'9" Fecovery 2'5"	gen 2,4 2'9"									
ANALYSIS	BOTTLE LOT NO.	TEMP (oC)	SPECIFIC CONDUCTIVITY (mmhos/cm)	pH STANDARD UNITS	TURBIDITY NTU	DISSOLVED OXYGEN (mg/L)	SALINITY			
LEAD & COPPER							 			
TAZ METALS X		-				<u></u>	 			
SVOC X		-		 		 				
Dest / Des X		-	 	 			 			
Diexin X			 	 	-		 			
SPLP METALS		-	 	+						
Toc. X										
GRAINSIZE X	1	_	1							
ATTENBOL (INIT										

DCB HONO LOGUE

P.	to	(

Brown & Root Environmental		SAMPLE LOG SHEET - SOLID PHASE						
Site Name: <u>RAYMARK Ou3</u> Sample ID: <u>Ou3 - D-SDO4</u>	B&R Job No./PMS 7491 - 0320 Replicate/Duplicate No.:(if applicable)							
Sample Method: Gre Core Cole Depth Sampled: O-2 feet Sample Date & Time: 7 122197 Sampler(s): 6, 7 Censo, Color Data Recorded By: Conso, Color Signa	TYPE OF SAMPLE: (Check all that apply) Soil Trip Blank* Sediment Rinsate Blank* Lagoon/Pond Field Duplicate collected Other (Specify): (Include sample source & lot no.) Description: (Sand, Clay, Muck, Peat, Dry, Moist, Wet, Etc.) Black Sift Are Sand (Fine.) Muck, Soft.							
SAMPLE DATA/REMARKS:								
ANALYSIS BOTT	TLE LOT NO.	TEMP (oC)	SPECIFIC CONDUCTIVITY (mmhos/cm)	pH STANDARD UNITS	TURBIDITY NTU	DISSOLVED OXYGEN (mg/L)	SALINITY	
LEAD & CORFER TAL METALS X SVOC X PEST / PLB X DIOXIN SPLP METALS TOL GRAIN SIZE ATTENBURY (INIT: ASBESTOS PCB HOMOLOGUE								
B8H FORM 0005		,u			·			

PL	T	2)	10	_

Brown & Root Environme	ental	SAMPLE LOG SHEET - SOLID PHASE							
Site Name: <u>RAYMARK</u> Sample ID: <u>Ou3</u> - D·S	04- Forny	8 R	B&R Job No./PMS 7491 - 0320 Replicate/Duplicate No.:(if applicable)						
Sample Method: Schimet Con Tobic Depth Sampled: 240-3 leet Sample Date & Time: 7 / 23/ 97 / 603 hours Sampler(s): Croff Dictard County More Data Recorded By: Include Sample Signature TYPE OF SAMPLE: (Check all that apply) Soil Trip Blank* Sediment Rinsate Blank* Lagoon/Pond Field Duplicate collected Grab Other (Specify): Pul - neg (Include sample source & lot no.) Description: (Sand, Clay, Muck, Peat, Dry, Moist, Wet, Etc.) Little Brank methor little Ame Sand, American Lagoon Description: (Sand, Clay, Muck, Peat, Dry, Moist, Wet, Etc.)									
	1-3 due to refus	el at 3'f	rom rock bettern						
ANALYSIS	BOTTLE LOT NO.	TEMP (oC)	SPECIFIC CONDUCTIVITY (mmhos/cm)	pH STANDARD UNITS	TURBIDITY NTU	DISSOLVED OXYGEN (mg/L)	SALINITY		
LEAD & COPFER									
TAR METALS Y									
SVOC X				<u> </u>	<u> </u>				
PEST / PLB X				ļ					
Diexin X		_					 		
SPLP METALS		_							
Toc. X			 	 					
GRAINSIZE X	GRAIN SIZE X								
ATTERBURG (INIT			1	1					
ASBESTOS X					<u> </u>		····		
PCB HOMOLOGUE	=	iU							

BAR FORM 0005

	ı
ا ان	>
1.0	,

|--|--|

Brown & Root Environme	ental	SAMPLE LOG SHEET - SOLID PHASE							
	K 043-1	FERRY CREEK		B&R Job No./PMS _ Replicate/Duplicate N	7491-03 10.:				
Sample Method: Core Tu. Depth Sampled: 0-2 feet Sample Date & Time: 7 1221 Sampler(s): C. More Data Recorded By: Cowrth	97 1430 hours G. Drenso	s Dup hours	s	Soil Sediment Lagoon/Pond Grab Description (Sand, Month black	Trip Blank* Rinsate Blank* Field Duplicate Other (Specify	e source & lot no.) Moist, Wet, Etc.)			
SAMPLE DATA/REMARKS: Pen 2.5 / 2. Theovery 1.0 ft	o#				•				
ANALYSIS Lead & Copper THE Metals X SUBC X PEST/PCB X DIGXIN	BOTTLE LOT NO). 							
SPLP METALS TOC X GRAIN SIZE HITERBURG LIMITS AS BESTOS X PCB Homoboue X						•			

a

	•
·	of _

Brown & Root Environmental SAMPLE LO					LOG SHEET - SOLID PHASE				
Site Name: CASMA Sample ID: DU3-D-	B&R Job No./PMS Y91-03-20 Replicate/Duplicate No.: 043-77-57060 (if applicable)								
Sample Method: Depth Sampled: Sample Date & Time: Sampler(s): C. ICCOO.		Trip Rins d Field Oth	t apply) Blank* ate Blank* I Duplicate collected or (Specify): ude sample source Peat, Dry, Moist, W	& lot no.)					
SAMPLE DATA/REMARKS:	, SOME S	5,14,	1. the a	Pebris 10	/uss)				
ANALYSIS	BOTTLE LOT	r NO.	TEMP (oC)	SPECIFIC CONDUCTIVITY (mmhos/cm)	pH STANDARD UNITS	TURBIDITY NTU	DISSOLVED OXYGEN (mg/L)	SALINITY	
THE Metals .							ļ		
1 500 ×									
pest per	·-							-	
70C V	<u> </u>								
Grain Size									
	Li v								
Asbestos v							 		
1					ļ		<u> </u>		
	1		Ţ	[

Brown & Root Environm	vental	SAMPLE LOG SHEET - SOLID PHASE					
Site Name: <u>RAYMANA</u> Sample ID: <u>DU3-D-S</u>		B&R Job No./PMS 7491-0320 Replicate/Duplicate No.: 043-D-5066-0304(if applicable)					
Sample Method: ### To perth Sampled: ### Time: 716 Sampler(s): ### O'S U!! Data Recorded By: ### OS SAMPLE DATA/REMARKS: ####################################		TYPE OF SAMPLE: (Check all that apply) Soil Trip Blank* Sediment Rinsate Blank* Lagoon/Pond Field Duplicate collected Grab Other (Specify): [Include sample source & lot no.} Description: (Sand, Clay, Muck, Peat, Dry, Moist, Wet, Etc.)					
ANALYSIS	BOTTLE LOT NO.	TEMP (oC)	SPECIFIC CONDUCTIVITY (mmhos/cm)	pH STANDARD UNITS	TURBIDITY NTU	DISSOLVED OXYGEN (mg/L)	SALINITY
TAL Mefaler SVOC							
si / /	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	_					
Dest/pen							
Toi							
Grain Size				 			
After burg limits	Į <u> </u>		 				

2

Pis	01

Brown & Root Environme	ntal	SAMPLE LOG SHEET - SOLID PHASE		
Site Name: RAYMARK OU3-FERRY CREEK Sample ID: OU3-0-5007-0002			B&R Job No./PMS 7491-0320 Replicate/Duplicate No.:	(if applicable)
Sample Method: Hand Augus Depth Sampled: 0-2 feet Sample Date & Time: 7/17/97 /220 hours Sampler(s): Cross Lourney Mayor		Dup hours	TYPE OF SAMPLE: (Check all that apply) Soil Trip Blank* Rinsate Blank* Lagoon/Pond Field Duplicate collect Grab Other (Specify): (Include sample source Description: (Sand, Clay, Muck, Peat, Dry, Moist,	ce & lot no.)
SAMPLE DATA/REMARKS:	Signature From Any sand, to	nce Organiz matter, te	ace glass, some un known flut H	Ya kay Substance
ANALYSIS Lead & Copper THE METALS X SUBC X PEST/PCB X	BOTTLE LOT NO.			
DIGXIN SPLP METALS TOC X GRAIN SIZE HITERBURG LIMITS AS BESTOS X PCB Homob gue				

	M		4
Pi		οŧ	

Brown & Root Environs	nental	SAMPLE LOG SHEET - SOLID PHASE		
Site Name: RAYMARK OU3-FERRY CREEK Sample ID: OU3-D-SQU7-U204			B&R Job No./PMS 7491-0320 Replicate/Duplicate No.:(if applicable)	
Sample Method: Jan Aug.		hours Dup hours	TYPE OF SAMPLE: (Check all that apply) Soil Trip Blank* Sediment Rinsate Blank* Lagoon/Pond Field Duplicate collected Grab Other (Specify): Prd - Ney (Include sample source & lot no.) Description: (Sand, Clay, Muck, Peat, Dry, Moist, Wet, Etc.)	
SAMPLE DATA/REMARKS:Some	fine sand	, black sit, trace glas	& agent nather & unknown Alat Nakey substance	
ANALYSIS Lead & Copper THE Metals X SUDC X PEST/PCB X DIGXIN SPLP METALS TOC X GRAIN SIZE ATTERBURG LIMITS AS BESTOS X PCB Homob gue	BOTTLE LO	r NO.		

	•	_		
		١.		,
		1	of	1
•			•	_

Brown & Root Environm	pental		SAMPLE LO	OG SHEET -	SOLID PHA	SE	
Site Name: <u>RAYMARK</u> Sample ID: <u>Ou3 - O-5</u>	008.0002	CREEK.		B&R Job No./PMS Replicate/Duplicate	7491-0	320	(if applicable)
Sample Method: OR COR COR COR COR COR COR COR COR COR	-2.6 A. neury	•	hours	f 10 - Wey	Trip I Rinsa d Field Other	Blank* te Blank* Duplicate collected (Specify): de sample source	& lot no.)
ANALYSIS	BOTTLE LOT NO.	TEMP (oC)	SPECIFIC CONDUCTIVITY (mmhos/cm)	pH STANDARD UNITS	TURBIDITY NTU	DISSOLVED OXYGEN (mg/L)	SALINITY
LOHO & CORPER TAZ METALSX							
SVOC X							
Pest / Pes X					,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		
SPLP METALS							
Toc X							ļ
GRAINSIZE X ATTERBURY (INIT	Y						
ASBESTOS X	<u> </u>						
DCB HOMO LOGUE	7						

BAR FORM 0005

•			•	ì
	7		,	•
D.	- 1	~1	,	

Brown & Root Environm	ental		SAMPLE L	OG SHEET -	SOLID PHA	SE	
Site Name: RAYMARK Sample ID: Ou3 - 0'5	Du3- p	FERRY CREEK		B&R Job No./PMS	S <u>7491-0</u> : e No.:	320	(if applicable)
Sample Method: Depth Sampled: 2-4 teet Sample Date & Time: 1 121 Sampler(s): Utoff Orland Data Recorded By:			hours	Soil Sediment Lagoon/Pon Grab PID - 40 Description: (Sar	Trip I Rinsa d Field Other	Blank to Blank to Blank to Blank to Blank to Displicate collected (Specify): de sample source to Blank to Blan	& lot no.)
SAMPLE DATA/REMARKS:							
VOA ANALYSIS X	BOTTLE LO	T NO. TEMP (oC)	SPECIFIC CONDUCTIVITY (mmhos/cm)	pH STANDARD UNITS	TURBIDITY NTU	DISSOLVED OXYGEN (mg/L)	SALINITY
LEAD & CORPER							
TAL METALS X							
Svoc X							
Dest / DIB X							
Diexin							
SOLD METALS							
Toc. X							
GRAINSIZE X						<u>.</u>	
ATTERBURE (INIT	X						
ASBESTOS X			<u></u>				
PCB HOMOLOGUE	1						
200 (000 (000)		_				_	_

٠.	1	of	

Brown & Root Environn	nental		SAMPLE LO	OG SHEET -	SOLID PHA	ASE	
Site Name: RAYMARA Sample ID: Ou3 - U S		CREEK.		B&R Job No./PMS	6 <u>7491-0</u> e No.:	320	(if applicable)
Sample Method:	Record: 3187	Dup	hours	Soil Sediment Lagoon/Pon Grab TIP Description: (Sar	Trip B Rinsa d Field Other	Blank* te Blank* Duplicate collected (Specify): de sample source leat, Dry, Moist, W	& lot no.)
ANALYSIS	BOTTLE LOT NO.	TEMP (oC)	SPECIFIC CONDUCTIVITY (mmhos/cm)	pH STANDARD UNITS	TURBIDITY NTU	DISSOLVED OXYGEN (mg/L)	SALINITY
LEAD & CORPER					,i		
TAZ METALS X					١.		
Dest / Des X							
Diexin					•		
SPLP METALS							
Toc. X							
GRAIN SIZE						-	
ATTERBURY (INIT							
ASBESTOS X DCB HOMOLOGUE							
1 2 1 1 4 2 2 6 0 6	<u> </u>	<u></u> .U					

88R FORM 0005

ė.	of	

Brown & Root Environmen	ntal		SAMPLE LO	G SHEET - S	SOLID PHA	SE	
Site Name: RAYMARK Sample ID: Ou3 - D-SI	043- Forny	CREEK.	B R	&R Job No./PMS eplicate/Duplicate	7991-03 No.:	20(i	 f applicable)
Sample Method: Schling of Depth Sampled: 2-Y feet Sample Date & Time: 7/2// Sampler(s): Freff Dicting Data Recorded By:	Recovery 3.1 ft 47 1250 hours	Dup h	nours		Trip B Rinsat Field I Other (Included, Clay, Muck, P		et, Etc.)
SAMPLE DATA/REMARKS:							
ANALYSIS	BOTTLE LOT NO.	TEMP (oC)	SPECIFIC CONDUCTIVITY (mmhos/cm)	pH STANDARD UNITS	TURBIDITY NTU	DISSOLVED OXYGEN (mg/L)	SALINITY
TAL METALS X							
SVOC X PEST / PCB X							
SPLP METALS							
GRAINSIZE ATTERBAL (INITS							
ATTENBUR (INIT) ASBESTOS X DCB HONIO LOGUE	1						

_				
Pa,	,	١	۸ı	١
	 _	_	٠.	-4

Brown & Root Environmental	SAMPL	E LOG SHEET - SOLID PHASE
Site Name: RAYMARK OU: Sample ID: OU3-P-SD10-		B&R Job No./PMS 7491-0320 Replicate/Duplicate No.:(if applicable)
Sample Method: Core Tubo Depth Sampled: A 2 feet Sample Date & Time: 7 10231 97 153: Sampler(s): G. Di Conso, Courtrey Data Recorded By: Signature	3 hours Dup 1535 hours Moore	TYPE OF SAMPLE: (Check all that apply) Soil Trip Blank* Sediment Rinsate Blank* Lagoon/Pond Field Duplicate collected Other (Specify): (Include sample source & lot no.) Description: (Sand, Clay, Muck, Peat, Dry, Moist, Wet, Etc.) Silt & Are and, Free argust matter
SAMPLE DATA/REMARKS: Pen 4 ft review 2.2 ft		
ANALYSIS VOC Lead & Copper THE Metals SUDC PEST/PCB DIGXIN SPLP METALS TOC GRAIN SIZE HITERBURG LIMITS AS BESTOS PCB Homobave	OT NO.	

(if applicable)

7491-0320

Trip Blank*

Description: (Sand, Clay, Muck, Peat, Dry, Moist, Wet, Etc.)

Rinsate Blank*

Other (Specify): _

Field Duplicate collected

(Include sample source & lot no.)

TYPE OF SAMPLE: (Check all that apply)

Brown & Root Environmental	SAMP	LE LOG SHEET - SOLID PHASE
Site Name: RAYMARK OU Sample ID: OU3 - D - SP10	13-FERRY CREEK	B&R Job No./PMS 7491- (
	Dup hours Dicense The second s	TYPE OF SAMPLE: (Check all that app Soil Trip Blank Sediment Rinsate B Lagoon/Pond Field Dup Grab Other (Sp (Include s Description: (Sand, Clay, Muck, Peat, Frat 6 and Sand (fare) A set for
SAMPLE DATA/REMARKS:		0
ANALYSIS BOTTL	E LOT NO.	
Lead & Copper THE METALS X SUBC X PEST/PCB X DIGXIN SPLP METALS		
TOC GRAIN SIZE HITERBURG LIMITS AS BESTOS X PCB Homobgue		

	- 1	
Pa.		of
	1	•

		· Kenii	Pá Pá of
Brown & Root Environm	ental	SAMP	LE LOG SHEET - SOLID PHASE
Site Name: RAYMAR Sample ID: OU3-E-	RK 043-FE 5001-0204	nry Creek	B&R Job No./PMS 17491-0320 Replicate/Duplicate No.: (If applicable)
Sample Method: Hand Aug Depth Sampled: 2-4 feet Sample Date & Time: 7/16/ Sampler(s): Graff Di Co	97 1350 hours	Dup hours	TYPE OF SAMPLE: (Check all that apply) Soil Trip Blank* Sediment Rinsate Blank* Lagoon/Pond Field Duplicate collected Grab Other (Specify):
Data Recorded By:	Signature		Description: (Sand, Clay, Muck, Peat, Dry, Moist, Wet, Etc.) Aum Silt, come tracking mt
SAMPLE DATA/REMARKS:			
ANALYSIS Lead & Copper (TAL Netals)	BOTTLE LOT NO.		
PEST/PCB DIOXINI X SPLP METALS			
(TOC) (FRAIN SIZE) X (BEERBURG LIMITS) (AS BESTOS)	ζ	——————————————————————————————————————	
PCB Homobaue			

		National Property of the Control of		
Brown & Root Environmen	ntal	SAMPLE	LOG SHEET - SOL	ID PHASE
Site Name: RAYMAR Sample ID: OU3-E-S	K 043-FE1 1001-0002	ery Creek	B&R Job No./PMS Replicate/Duplicate No.:	7491-032
Sample Method: Haw Augur Depth Sampled: 0-2 feet			TYPE OF SAMPLE: (Che	ck all that apply)
Sample Date & Time: 7/K/19 Sampler(s): Groff Dicrus	17 1320 hours	Dup hours	Sediment Lagoon/Pond Grab	Trip Blank* Rinsate Blank* Field Duplicate c Other (Specify):
Data Recorded By:	Signature		Plo - Ny. Description: (Sand, Clay Bown Sit, some nye)	
SAMPLE DATA/REMARKS:				
ANALYSIS	BOTTLE LOT NO.			···· <u>·</u> ··· <u>·</u> .
TAL Metals				
PEST/PCB) DIDXIN X) SPLP METALS		-		٠,
(TOZ) GRAINSIZE X)			٠.	
(AS BESTOS) PCB Homologue)				

	_
Pa_	 of

				Pa
Brown & Root Environm	ental .	SAMPLE L	.OG SHEET - SOLI	D PHASE
Site Name: RAYMAN Sample ID: OU3-E-	CK OU3-FERRY C SD02-OUO2	-REEK	B&R Job No./PMS Replicate/Duplicate No.:	7491-0320
Sample Method: Hand Au	ger_		TYPE OF SAMPLE: (Chec	
Depth Sampled: 0-1 feet	·			
Sample Date & Time: 71 16 Sampler(s): roff 0.64		hours	Soil Sediment Lagoon/Pond Grab	Trip Blank* Rinsate Blank* Field Duplicate collected Other (Specify):
			PID - Neg	(Include sample source & lot
	1./		· /	, Muck, Peat, Dry, Moist, Wet, E
Data Recorded By:	Signature		Bun sill- b pat,	tots of vyethin some vy
SAMPLE DATA/REMARKS:				
SAMPLE DATA/REMARKS:				
SAMPLE DATA/REMARKS:				
SAMPLE DATA/REMARKS: ANALYSIS	BOTTLE LOT NO.			
ANALYSIS	BOTTLE LOT NO.			
ANALYSIS Lead & Copper	BOTTLE LOT NO.			·
ANALYSIS Lead & Copper (TAL Metals)	BOTTLE LOT NO.			•••
ANALYSIS Lead & Copper (TAL Metals)	BOTTLE LOT NO.			<u>-</u>
ANALYSIS Lead & Copper (TAL Metals) (SUD) (PEST/PCB)	BOTTLE LOT NO.			
ANALYSIS Lead & Copper (TAL Metals) SUDD (PEST/PCB) DIGKIN \$	BOTTLE LOT NO.			
ANALYSIS Lead & Copper (TAL Metals) (SUD) (PEST/PCB)	BOTTLE LOT NO.			
ANALYSIS Lead & Copper THE METALS PEST/PCB DIOXIN SPLP METALS	BOTTLE LOT NO.			
ANALYSIS Lead & Copper (TAL Metals) SUDD (PEST/PCB) DIOXIN SPLP METALS (TOC)				
ANALYSIS Lead & Copper (TAL Metals) SUDD (PEST/PCB) DIGKIN SPLP METALS (TOC) GRAIN SIZE) X				

n:	- 1	-4	
Pá.		O!	

		Name of	Pé, of
Brown & Root Environm	ental	SAMPLE	LOG SHEET - SOLID PHASE
Site Name: RAYMAK Sample ID: OU3-E	CK 043-FE 5002-0204	nry Creek	B&R Job No./PMS 7491-0320 Replicate/Duplicate No.: (if applicable)
Sample Method: / tunk Aug Depth Sampled: 2-4 feet Sample Date & Time: 7/16 / Sampler(s): 6-coff 0. (c) Data Recorded By: 5-coff Data Recorded By:	17 /440hours	Dup hours	TYPE OF SAMPLE: (Check all that apply) Soil Trip Blank* Sediment Rinsate Blank* Lagoon/Pond Field Duplicate collected Other (Specify): [In-No] (Include sample source & lot no.) Description: (Sand, Clay, Muck, Peat, Dry, Moist, Wet, Etc.) Been Gif, they are defined of the control of t
ANALYSIS Lead & Copper (TAL Metals)	BOTTLE LOT NO.		
PEST/PCB DIGKIN # SPLP METALS (TOC) (FRAIN SIZE) (HITERBURG LIMITS) AS BESTOS			
PCB Homobgue		<u>!</u> ! 	

Brown	&	Root	Environmental	

SAMPLE LOG SHEET - SOLID PHASE

Site Name: August OV Sample ID: OV3- (- Co		10211-0002		B&R Job No./PMS Replicate/Duplicat			(if applicable)
Sample Method: Jan Add Add Add Add Add Add Add Add Add Ad	197 1981 hours		hours	Soil Sediment Lagoon/Pon Grab PID - N'9 Description: (San	Trip E Rinsa d Field Other	Blank *	& lot no.)
SAMPLE DATA/REMARKS:	·	· · · · · · · · · · · · · · · · · · ·				· · · · · · · · · · · · · · · · · · ·	
					 		
							
ANALYSIS	BOTTLE LOT NO.	TEMP (oC)	SPECIFIC CONDUCTIVITY (mmhos/cm)	pH STANDARD UNITS	TURBIDITY NTU	DISSOLVED OXYGEN (mg/L)	SALINITY
Hear Comer						L	<u> </u>
TAL MUDD							
CVO						· 	<u> </u>
187 VLA							ļ <u> </u>
Spir Muly					· · · · · · · · · · · · · · · · · · ·	- 	ļ
Jew							<u> </u>
(GSA)		_					ļ
Affermy Limits)		_		ļ			
(Aches his			ļ				ļ
per Homologue		ـــــال	<u> </u>		<u> </u>		

B&R FORM 0005

1.	•	
De.		of
ra.		_ UI

Brown & Root Environmental		SAMPLE L	og sheet -	SOLID PHA	ASE	
Site Name:	Cuck DY-12B		B&R Job No./PMS			(if applicable)
Sample Method:	hours Dup	hours		Trip Rinsa d Field Other	Biank*	& lot no.)
ANALYSIS BOTTLE LO	T NO. TEMP (oC)	SPECIFIC CONDUCTIVITY (mmhos/cm)	pH STANDARD UNITS	TURBIDITY NTU	DISSOLVED OXYGEN (mg/L)	SALINITY
CTAL MILLS (SVOL) (PESTIFUS)			·	<u> </u>		
SPLE Milas (LSA)						
About DCB Asmalyon						

OU3-FERRY CREEK 103-0002 1515 hours Dup hours Country Music	B&R Job No./PMS
	- "
	Sediment Rinsate Blank* Lagoon/Pond Field Duplicate collected Other (Specify): (Include sample source & lot no.) Description: (Sand, Clay, Muck, Peat, Dry, Moist, Wet, Etc.)
	·
BOTTLE LOT NO.	
	BOTTLE LOT NO.

•

^	SAMI	PLE LOG SHEET - SOLID PHASE	
Site Name: RAYMARK 043. Sample ID: O43-6-5003.00	- FERRY C-	OOLID PHASE	
Sample ID: 043 - E- 5003- 0204	- THE CONTRACTOR OF THE CONTRA	B&R Job No./PMS 7491-03	20
Sample Method:		Replicate/Duplicate No.:	(if applicable
Depth Sampled: 2-y feet		TYPE OF SAMPLE: (Check all that apply)	
Sample Date & Time: 7 //C / 97 /522 hor	II'S Dun .	Soil	
Sampler(s): Groff D. Coss, Courly Mo	IIS Dup hours	Sediment Rinsate Blank* Lagoon/Pond Field Duplicate	Collected
1		Other (Specify)	:
Data Recorded By:		/ / involute sample	source & lot no.)
Signature		Description: (Sand, Clay, Muck, Peat, Dry, 1)	Moist, Wet, Etc.)
SAMPLE DATA/REMARKS:		- Fell Machalian	
TOTAL STATE OF THE			
ANALYSIS			
ANALYSIS BOTTLE LOT NO.			
ANALYSIS BOTTLE LOT NO. ead & Copper THE Metals			
ANALYSIS BOTTLE LOT NO. ead & Copper THE Metals			
ANALYSIS BOTTLE LOT NO. Lead & Copper THE Metals SUNC PEST/PCB			
ANALYSIS BOTTLE LOT NO. Pead & Copper THC Metals SUBC PEST/PCB DIOKIN			
ANALYSIS BOTTLE LOT NO. Lead & Copper THE Metals SUNC PEST/PCB DIGKIN PLP METALS			
ANALYSIS BOTTLE LOT NO. ead & Copper THC Metals) SUBCO PEST/PCB DIGKIN PLP METALS TOCO			
ANALYSIS BOTTLE LOT NO. PEAD & COPPEL THE METALS SUBCE PEST/PEB DIGKIN PLP METALS TOCE GRAIN SIZE X HIERBURG LIMITOR			
ANALYSIS BOTTLE LOT NO. ead & Copper THC Metals) SUBCO PEST/PCB DIGKIN PLP METALS TOCO			

Appendices B and C
(pages 51-62)
are available
in a separate file (size: 2.0 MB)

Click here to view.